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In The
Supreme Court of the United States

AMERICAN CHIROPRACTIC ASSOCIATION, INCORPORATED, a non-profit corporation, *et al.*,
Petitioners,

v.

TRIGON HEALTHCARE, INCORPORATED, *et al.*,
Respondents.

ON PETITION FOR WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

APPENDIX D TO
PETITION FOR WRIT OF CERTIORARI

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THIRD CORRECTED EXPERT WITNESS STATEMENT ON ECONOMIC ISSUES ON BEHALF OF PLAINTIFFS AMERICAN CHIROPRACTIC ASSOCIATION AND OTHERS

Leonard G. Schifrin, Ph. D.
Chancellor Professor of Economics, Emeritus
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Clinical Professor of Preventive Medicine, 1982-1992
Medical College of Virginia -
Richmond, Virginia

My name is Leonard G. Schifrin. I reside at 163 Devon Road, Williamsburg, Virginia. I was a Professor of Economics, specializing in health care economics and health care policy, at the College of William and Mary, Williamsburg, Virginia, until my retirement from teaching in 1998. I received my bachelor's degree in economics from the University of Texas, Austin, in 1954, rny master's degree in economics, also from the University of Texas, in 1958, and my doctorate in economics from the University of Michigan in 1964.1 have had numerous academic affiliations during my career before and while I served at William and Mary. One such affiliation was as Clinical Professor of Preventive Medicine at the Medical College of Virginia, in Richmond, from 1982 until 1992, where I gave lectures and seminars on all aspects of health care economics and policy. Currently I work in litigation and other matters within my specialties on a consulting basis. My full academic and consulting backgrounds are in my Curriculum Vitae, which is attached to this statement. In this case I am being remunerated at a rate of $200 per hour, and expenses.

I. COMPETITION IN THE TREATMENT OF BACK PAIN

This statement focuses on the provision of medical services by chiropractors, particularly those services also provided by other practitioners such as medical physicians and surgeons and osteopaths. These different providers stand as alternative sources of treatment, particularly for back pain but also for other ailments stemming from problems of the musculoskeletal system, and as such they are correctly viewed by patients as substitutes or competitors in the provisiori of care for such problems.

Competition between and within alternative providers has become a common and desirable — though not universal — feature of the modem medical scene in the United States and has played a major role in containing health care costs. Although total health care costs are large and growing quickly, nonetheless, they are substantially lower than they would be without such competition. Examples of competition between different types of providers are plentiful. For example, there is competition in the prescription of corrective eyewear between ophthalmologists and optometrists, and in providing corrective eyewear between optometrists and opticians. Another example is the competition in the provision of anesthesiological services between anesthesiologists and nurse anesthetists. There is competition in the provision of diagnostic tests between hospital laboratories, independent laboratories, and physicians' in-office laboratories. Competition within provider categories also is seen, such as the competition in the provision of primary care physician services between physicians working independently, in small and large group practices, in hospital clinics, in free standing hospital outreach offices in shopping centers and elsewhere. There is competition in the provision of surgery between hospital operating rooms and specialized surgicenters. In other words, competition — or at least the

potential for competition — in the provision of medical services is pervasive. It is this competition that is the lifeblood of "value for money" in choosing medical care, and, when competition is free to function, it drives the system to work for the benefit of those who pay for health care — individual households, private employers, and governments — and those of us who need it, namely, everyone.

The specific issue at hand is the role of chiropractors in this competition, particularly vis-a-vis medical physicians and surgeons and doctors of osteopathy in the treatment of one of the most common ailments for which patients seek medical care, back pain. Back pain afflicts almost everyone sometime during their life. By many estimates it is the second most frequent cause for seeking care, after upper respiratory problems, and the most common reason for young adults to seek care. Hence, in economists' terms, the treatment of back pain represents a large economic market.

The essential first question is how chiropractic compares as a viable alternative or competitive ' mode in meeting this large need for the treatment of back pain. Specifically, what does the published evidence in the professional health care literature reveal about the efficacy and cost of treatment of back pain by chiropractors compared with other professional providers. In answering that question we turn first to research in the period before 1992, and then to research in the period afterward.

A. Professional Studies of the Efficacy, Cost, and Cost-Effectiveness of Chiropractic Treatment of Musculoskeletal Injury, Particularly Soft-tissue Injury of the Lower Back (Back Pain): Up to 1992.

1. The Study for the Virginia Chiropractic Association

Two comprehensive reviews of the professional literature addressing comparisons between chiropractic and other types of treatment for back pain occurred almost simultaneously. One is a study I performed under contract with the Virginia Chiropractic Association (VCA), completed in 1992.[1] The other is a major study by the RAND Corporation published slightly earlier. The following is the summary (pp. 69-71), verbatim, of the results of the literature review in my 1992 study for the VCA.

The U.S. and Foreign Studies: Summary,

All told, 22 literature surveys or research studies and one "inquiry" have been reviewed here. These have covered two time periods, the "earlier" period before 1980, the "recent" period after 1980. The data studies have covered 14 states and

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[1] MANDATED HEALTH INSURANCE COVERAGE FOR CHIROPRACTIC TREATMENT: AN ECONOMIC ASSESSMENT, WITH IMPLICATIONS FOR THE COMMONWEALTH OF VIRGINIA. Leonard G. Schifrin, Ph. D., Virginia Chiropractic Association, January 1992. This study was conducted independent of any litigation, including this case, involving the chiropractic profession. Further, it was made clear to the VCA that I was not their "hired gun" agreeing before the fact to support their position in the issue at hand; rather, I would systematically review and objectively analyze the published literature on chiropractic efficacy and cose, and set forth my results exactly as they emerged.

two foreign countries, and the literature surveys have included still others.

These materials have considered, in total, eight different dimensions of the cost and efficacy of chiropractic treatment of low back pain. The cost measures have included total case costs, total provider payments, total worker indemnity payments to compensate for wage loss, and treatment frequency; the efficacy or outcomes measures have included the duration of work loss, the period of disability, pain relief, and patient satisfaction with treatment.[2] Of course, each study is unique, in its design and methodology, including location, case selection, time span, and cost and efficacy criteria. -They do not relate as closely to each other as pieces in a jigsaw puzzle, but they do bear generally on the same questions and contribute evidence to their answers.

In the 14 state studies in the pre-1980 period, chiropractic compares favorably with medical doctors in the treatment of low back pain. Only in one facet of one study, indemnity payments in the 1974-1975 Oregon study, does chiropractic not rank more favorably than medical treatment. *In about 35 other comparisons in these 14 studies and the two general surveys, the results of chiropractic treatment exceed those of medical care.*

In the four studies in the post-1980 period, covering West Virginia, Iowa, Florida, and Oregon, chiropractic also fares well, although not quite so unanimously. In the Iowa and Florida studies, chiropractic surpasses medical treatment in the efficacy measures; on the other hand, chiropractic provider costs are higher, but when all case treatment costs are taken into account, total case costs for D.C. care are seen to be lower. One study, in Oregon, produced mixed, "unremarkable" results, and another, the Greenwood study in West Virginia, was unique among all examined here, finding chiropractic more costly and less effective in the four measures employed.

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[2] In all cases where italics appear in the text of this statement they have been added for emphasis.

Every study, favorable to chiropractic or not, admittedly is imperfect, sometimes seriously. *However, within their limitations, individually – except for the Greenwood study – and together they are more favorable to chiropractic than to medical practitioners, in terms of both cost and effectiveness, in the treatment of low back pain associated with sprains and strain.*

The two foreign studies, one the MRC Study in Great Britain, the other the Report of the Commission of Inquiry in New Zealand, are both supportive of chiropractic. The' British study strongly favors chiropractic treatment over hospital-based physiotherapy, and the New Zealand report gives chiropractic a broad stamp of approval, advocating its inclusion in both their national health care and disability insurance systems. Again, these conclusions are to be taken within the limitations of their respective contexts, *but they, too, are more supportive of chiropractic than alternative sources of care, on these crucial counts of cost and effectiveness*

2. The RAND Study

Although its scope is substantially broader, The RAND Corporation's Literature Review Summary[3] is in essential agreement with the conclusions of the VCA Study. Notably, RAND's statement on "Efficacy" (p.v) reads as follows:

> The literature on the efficacy of spinal manipulation is of uneven quality. While many studies are randomized controlled trials, there is a great diversity in the initial selection and evaluation of patients for study, assignment of those patients to spinal manipulation or a control treatment, the type of manipulation given, the type of control treatment given, and

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[3] THE APPROPRIATENESS OF SPINAL MANIPULATION FOR LOW BACK PAIN: Project Overview and Literature Review. Shekelle et al., RAND Corporation, Santa Monica, CA, 1991.

> the method of assessing a response. Given that caveat, *support is consistent for the use of spinal manipulation as a treatment for patients with acute low-back pain and an absence of other signs or symptoms of lower limb nerve-root involvement.* Support is less clear for other indications, with the evidence for some *insufficient* (acute and subacute low-back pain with sciatica, acute and subacute low-back pain with minor lower limb neurological findings, most types of chronic back pain), while the evidence for others is *conflicting* (acute low-back pain with sciatica and minor lower limb neurological findings, subacute low-back pain without sciatica, and chronic low-back pain without sciatica).

Note that in none of these summary review statements is there a negative finding for the efficacy of chiropractic treatment.

B. Reports and Research: After 1992:

1. Agency for Health Care Research and Policy ("AHCPR")

An especially important policy statement on the efficacy of chiropractic treatment of low back problems is the Report by the Agency for Health Care Research and Policy of the Department of Health and Human Services, "ACUTE LOW BACK PROBLEMS IN ADULTS: CLINICAL PRACTICE GUIDELINES."[4] This report is based on analyses of literally hundreds of studies and overviews and its conclusions

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[4] U.S. Department of Health and Human Services, Washington, DC, December 1994. U.S. Department of Commerce, National Technical Information Series.

represent what has been referred to as "a paradigm shift" in the treatment of back pain. (This paradigm shift is discussed in detail in Part II of this Statement.)

Excerpts from the AHCPR Report compare the *usefulness* of *medications* and *manipulation:*

a. The AHCPR finds that some types of *medications* are useful in the treatment of low back pain, but there may be *risks* in their use such as adverse side effects, drowsiness, and dependency, while other types of medications are not recommended (pp.26-34.)

b. As to spinal manipulation[5] in treating low back problems, the Report states (p.34), "Manipulation can be helpful for patients with acute low back problems without radiculopathy when used within the first month of symptoms. (Strength of Evidence = B)"[6]

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5 The AHCPR defines "manipulation" in its medical sense, as follows: "... For this guideline, manipulation is defined as *manual therapy in which loads are applied to the spine using short or long lever methods. The selected joint is moved to its end range of voluntary motion, followed by application of an impulse loading. The therapeutic objectives of manipulation include symptomatic relief and functional improvement*" (pp. 34-35.)

6 "Strength of Evidenced" means the finding is supported by "Moderate research-based evidence (one relevant, high-quality scientific study or multiple adequate scientific studies")

c. Further, the Report's "Findings and Recommendations" as summarized in the Abstract (p. iii) brings together these views on medication and manipulation in regard to pain relief thus: "*Relief of discomfort can be accomplished most safely with nonprescription medication and /or spinal manipulation.*"

Accordingly, all three of these statements appear to put nonprescription medication and spinal manipulation on an equal footing in their effectiveness in treating back pain.

d. However, a very important additional conclusion, referring only to manipulation, is to be found (p.36) under the heading "Summary of Findings." It reads, "...For patients with acute low back pain symptoms without radiculopathy, the scientific evidence suggests spinal manipulation is effective in reducing pain and perhaps speeding recovery within the first month of symptoms..." In other words, improved functional capability, not just the alleviation of symptomatic pain, may result from manipulation. No similar statement is to be found for the use of nonprescription medication, or any other treatment.

This view of the AHCPR is strengthened again by reference to the professional literature. The AHCPR continues (p.35) "A meta-analysis of the remaining seven studies also showed significant short-term effects of manipulation in hastening recovery from low back problems. Another meta-analysis, based on 23 randomized controlled trials of manipulation and mobilization, came to a similar conclusion."

Clearly, then, the compelling conclusions of this Report by the preeminent governmental health care research agency are:

- *chiropractic manipulation is a first line of treatment for low back pain not associated with "red flag" diagnosis such as "tumor, infection, or significant trauma," and*

- *unlike medication, helps in restoring the patient's functional capability, thus reducing the duration of disability.*[7]

1. Additional Research Studies

Other current and noteworthy studies continue to strengthen the case for chiropractic treatment of back pain, with emphasis on its cost-effectiveness and the savings thus attained. Two such studies are Snook and Hendrickson, "An Actuarial Analysis of the Impact of Chiropractic Care on the Costs of Medical Care for Patients with Common Spinal Diagnoses",[8]

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[7] It should be noted that Trigon publishes a "Clinical Practice Guideline Series," titled quite closely to AHCPR's "Clinical Practice Guidelines." In the Trigon publication MANAGING LOW BACK PROBLEMS IN ADULTS, in the protocol under the heading "Treatment at Initial Visit," the last sentence of option 2 reads, "A short trial of manipulation may be as effective as NSATDS..." in relieving symptoms, implying that NSATD medications are the standard which manipulation may or may not approach. This statement is not at all in the spirit of the AHCPR statement that equates the two treatments in regard to pain relief and reads, again, "Relief of discomfort can be accomplished most safely with nonprescription medication and /or spinal manipulation." Further, the Trigon Guidelines make no mention of AHCPR's finding that there may be improved *functional capability* resulting from manipulation. (This point will be revisited in PART II, p.10 of this brief.)

[8] Milliman USA, October 11, 2001.

and "Trends in Chiropractic Treatment of Workers' Compensation Claimants in the State of Florida."[9]

Snook and Henderson conclude:

> ...patients with common spinal diagnoses...who seek chiropractic care have materially lower health care costs than those who do not[10]

In the Florida report the authors conclude:

> Based on estimated savings per claim, dramatic savings *(possibly into the billions of dollars)* may be possible with increased workers' compensation claimant access to chiropractic treatment for specific low back and other musculoskeletal conditions.[11]

These two studies thus ratify an important point made in my 1992 study for the Virginia Chiropractic Association, namely, that the expansion of the use of chiropractic treatment not only does not increase society's total spending on health care, but is highly likely to constrain and even reduce it by providing a more effective treatment at lower cost for a very common physical problem.

Completing this review of the most prominent professional literature on the treatment of back pain, I requested from Anthony L. Rosner, Ph. D., Director of Research and Education for the Foundation for Chiropractic Education and Research, the leading studies, in terms of their methodological

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9 Submitted to Ms. Debra Brown, Chief Executive Officer Florida Chiropractic Association by MGT of America, Tallahassee, Florida, January 28,2002.

10 P.8

11 P.iv

rigor, on chiropractic cost-effectiveness, of the past decade. The 10 studies he submitted are listed in Appendix A of this Statement.

Upon review of these studies, these conclusions emerge:

a. The medical and statistical rigor of these studies has reached an impressive level, and the findings they provide are less subject to qualification than many preceding studies.

b. Studies on the outcomes of chiropractic treatment now include disabilities other-than back pain, particularly headache, neck pain, widespread musculoskeletal disorder, hemiated disks, carpal tunnel syndrome, and whiplash.

c. Recent research on manipulation continues to find it effective in the treatment of low back pain problems, both in relieving pain and restoring functional mobility.

d. Further, studies on adverse outcomes of manipulation indicate that serious complications
are extremely rare.

Thus, while the recent literature in regard to the treatment of low back pain by manipulation is more rigorous and far reaching, as a whole, than earlier studies, the conclusions of the earlier research again are strongly validated, namely, *that manipulation is an effective and economical intervention for such problems.* Further, the recent evidence also finds manipulation to be a *highly safe* treatment.

Accordingly, based on the large quantity of reports, studies, and overviews covering the periods before and after 1992, my professional conclusions on chiropractic manipulation in the treatment of back pain are the following:

> *In virtually all measures of beneficial outcomes and low costs, chiropractic treatment of back pain compares highly favorably with other sources and types of treatment, including medical management, surgery, bed rest, osteopathy and physiotherapy. With near unanimity, the evidence, viewed piecemeal or together in a broad picture, strongly supports chiropractic as a treatment of choice for this very common and costly ailment.*
>
> *The practice guidelines issued by the leading governmental health care policy and research agency, AHCPR, provide strong support for the use of spinal manipulation as a first line of treatment for non-traumatic back pain, with additional indication of its effectiveness in improving functional mobility.*
>
> *Chiropractic manipulation in treating back pain is a highly safe form of therapy.*
>
> *This evidence supports the view that, in a free, open, and competitive market for the treatment of back pain, chiropractors would be highly effective competitors vis-à-vis medical physicians and surgeons, osteopaths, physical therapists, and other medical professionals*

II. RESTRAINTS BY TRIGON AND MEDICAL PHYSICIANS ON THE POTENTIAL COMPETITION FROM CHIROPRACTORS IN THE TREATMENT OF BACK PAIN

Although chiropractic treatment of back pain is a demonstrated effective and economical alternative compared

with other treatments, and chiropractors thus are potentially strong competitors with other types of providers in treating back pain, substantial anti-competitive restraints have been placed in the way of their equitable participation in this large market.

Anti-Competitive Market Power

Because most patients are covered by health insurance, providers' fees for patient services are largely determined by a few, large payers, whether they are called pre-payment plans or insurers.

The market power of these payers in the provision of treatment for back pain is such that the terms of transactions – which providers offer what services at what prices – are not independently determined by free competition and free choice, but result from the arbitrary decisions of large market participants. Trigon, as a dominant payer for health and medical services in Virginia, has exercised its market power, in combination with organizations of medical physicians in Virginia, to harmfully restrain the participation of chiropractors in the' provision of treatment for back pain for Trigon-insured patients, for the economic protection of medical physicians.

The methods employed by Trigon and the organizations of medical doctors who treat back pain are A: setting low limits or "caps" on how much Trigon will pay for a patient's chiropractic treatments in a given year, B: unreasonably low reimbursement for chiropractic procedures other than manipulation (for example, evaluation and management and X-rays) for back pain, and C: actions to curtail referrals to chiropractors by medical physicians. The aim and effect of these actions are to restrain competition bv reducing the role of chiropractors in the treatment of back pain and shift the demand for their services to medical doctors.

A. Caps

Reimbursement caps or limitations, if set at restrictive levels, can impose heavy financial penalties on patients and also on chiropractors. Trigon has imposed a cap on payments for spinal manipulation of $500 per year per insured individual. In other words, Trigon will pay a total of no more than $500 to any and all chiropractors for therapy for a Trigon-covered mdividual in a given year regardless of how much treatment is necessary to remedy the problems suffered by that person. Once this cap is reached, patients who continue to seek chiropractic treatment of any sort must pay 100% out-of-pocket, with no further insurance coverage. Obviously, this will curtail the demand for chiropractic services, redirecting patients to other types of providers such as medical doctors at the outset or during their chiropractic treatment, or perhaps causing patients to halt their therapy entirely when the $500 limit is reached.

Caps thus may pose a serious constraint imposed by Trigon on chiropractors' ability to compete with medical doctors in this large market.

B. Under-reimbursement

1. Discounting Payments to Chiropractors for Services Other Than Chiropractic Manipulative Treatment (CMT)

In an effort to make reimbursement payments for different health care procedures paid for under Medicare and other government health programs bear reasonable relationships to each other, and to offer a model useful to private insurers, the Health Care Financing Administration (HCFA) of the U.S. Department of Health and Human Services developed a formula for estimating the relative costs of producing a wide range of such procedures. This model is called the Resource

Based Relative Value Scale (RBRVS.) These relative cost differences are intended to guide the differences in reimbursement rates paid to providers, on the principle that payment differences should reasonably relate to cost of production differences for different procedures. Treatments of spinal problems are included in this Resource Based Relative Value Scale.

Documents I have read in preparing for this case indicate that Trigon's payments to providers are calculated by multiplying RBRVS values (called RVUs, or Relative Value Units) by a monetary "conversion factor." For chiropractic services other than manipulation, however, the product of this multiplication is discounted heavily, -falling well below the rates paid to medical doctors for the same procedures. This reduction was 30% up to late November 1996, and 40% since then.

Attempting to defend these payment differentials, Trigon argues at one point that the payment to chiropractors, compared with medical doctors, for these treatments (other than manipulative therapy) for back pain is explained or rationalized by the differences in their costs of education, training, and other inputs into their services to patients, and medical physicians are entitled to their much higher payments from Trigon because of their higher costs of producing these services.

The fallacy in Trigon's argument is this: physicians, both primary care and specialists, are trained to diagnose and treat a very wide range of health care problems, while chiropractors are intensively trained in a relatively narrower range of diagnosis and treatment. It is not reasonable to include in the physicians' cost base for treating back pain all costs of their training, however far removed from back pain they might be. If only the costs incurred in preparing doctors of medicine to diagnose and effectively treat *back pain* are measured, these costs appear to be surprisingly small, given studies, testimony,

and other statements that the time spent educating physicians in treating back pain is minimal, or even zero, in the crowded medical school curriculum.

A useful analogy might be this: imagine a mechanic with a diploma attesting to his competence to treat all problems of the automobile. He has a large shop, numerous helpers, and a wide range of equipment and machinery. Next door is a mechanic who repairs only brakes, with a diploma in brake repair from an accredited technical school, perhaps one helper, and the necessary tools for repairing brakes, nothing more. Is it logical for the first mechanic to charge a higher price to repair your auto brakes because he also stands ready to diagnose and repair engines, transmissions, drive shafts, fuel systems, electrical systems, and all the other complex components of today's cars? Of course not. And perhaps, on closer examination, his actual training may not have included certain other, perhaps more cost-effective, ways to repair brakes than those he was taught in school and currently uses. The idea of paying him more to repair your brakes because of his higher total costs of training and equipment is, of course, unjustified and unfair, harmful to both your automobile and your pocketbook. And in a *competitive* market for brake repairs, such large differentials in pricing would not exist.

The other argument, that "market conditions" are to be used for determining a few reimbursement rates, is a telling one. However important competition is becoming in the broad health care scene, the market for medical services is not yet freely competitive, since, as noted, it is dominated by a few large group payers for services (such as pre-pay organizations and insurers like Trigon) and by medical doctors who do not compete openly among themselves in price and quality. Accordingly, the market conditions referred to by Trigon are the conditions of a market in which pre-payers, insurers, and medical doctors are the dominant, powerful, noncompetitive players, and chiropractors, who

want to be competitive players, are small and powerless. In such markets, the powerful actors – particularly, as in this case, when they act together – can heavily influence and largely determine what the pattern of production will be and what price tags will be attached to it. In this particular market – the treatment of back pain – the power to under-compensate chiropractors relative to doctors of medicine, (and other providers) exists. It is implemented by cooperation between Trigon and the medical doctors of Virginia acting through their professional organizations, and its effects are harmful.

2. "Leveling" Payments for CMT Services.

For manipulation services perfonned by chiropractors, Trigon has put into place another system for underpaying that can be called "levering of codes." Trigon has reduced payments for treatments in reimbursement codes 98941 and 98942 by setting these payments equal to those for code 98940, which involves less intervention and thus is of lower monetary value.

Discounting payments for non-CMT services and leveling payments for CMT services affect all chiropractic services, and together create severe under-reimbursement to chiropractors. Under-reimbursement, talcing these two forms, thus constitutes another restraint on chiropractors' equal competitive participation in the market.

C. Curtailed Referrals: the Trigon Guidelines Reexamined.

We now revisit footnote 7, p. 6 of this Statement, which reads, in its entirety, as follows:

> It should be noted that Trigon publishes a "Clinical Practice Guideline Series," titled quite closely to AHCPR's "Clinical Practice

> Guidelines." In the Trigon publication in this series MANAGING LOW BACK PROBLEMS IN ADULTS, in the protocol under the heading "Treatment at Initial Visit," the last sentence of option 2 reads, "A short trial of manipulation may be as effective as NSATDS..." in relieving symptoms, implying that NSATD medications are the standard which manipulation may or may not approach. This statement is not at all in the spirit of the AHCPR statement that equates the two treatments in regard to pain relief and reads, again, "Relief of discomfort can be accomplished most safely with nonprescription medication and /or spinal manipulation." Further, the Trigon Guidelines make no mention of AHCPR's finding that there may be improved *functional capability* resulting from manipulation.

It was indicated earlier that the widely publicized AHCPR position on the treatment of low back pain represented a major "*paradigm shift*" in the therapeutic management of this widespread health problem. This shift is *away from the management or alleviation of back pain by medical doctors using drugs, surgery, bed rest, and other approaches, to the treatment of back pain by chiropractors using manipulation,* with improved outcomes in pain relief and restoration to activity or "functional mobility." *In other words, the change in paradigm means that new treatments (manipulation) by new providers (chiropractors) with new and better results (relief of pain plus improved functional mobility) constitute the now-preferred approach to back pain.*

Further, the implication of the new paradigm is that when patients with back pain come to medical doctors, it would be in the best interest of the patient to be referred by the medical doctor to a chiropractor for manipulative therapy and related treatment.

Trigon, however, in its Clinical Practice Guideline Series Publication "MANAGING LOW BACK PROBLEMS IN ADULTS," a re-write of the ACHPR Guidelines, obfuscates this new paradigm of manipulative therapy in an attempt to neutralize the AHCPR's endorsement of chiropractic.

< "Manipulation," which in-the AHCPR report is defined in way that precisely reflects what chiropractors perform, is nowhere defined in the Trigon guidelines.

< When "manipulation" is mentioned, it is placed not on an equal footing with non-prescription medication, as in the AHCPR Report, but placed *after* "Non-rx analgesics." These drugs are mentioned as "recommended" by Trigon in "option 1" of the protocol, but "a short trial of manipulation" which "may be as effective as NSAIDS" is mentioned only afterward, in "option 2." The fact that manipulation is recommended at least equally by AHCPR thus has been totally ignored by Trigon, and any reference to "chiropractic" manipulation is avoided.

< Further, the Trigon Guidelines make no mention at all of the possibility of better outcomes or results in terms of improved functional mobility if patients are, referred to chiropractors for treatment with manipulation.

This revised treatment protocol in the Guidelines for Managing Low Back Problems in Adults, approved by representatives of Trigon and the medical doctors of Virginia acting together (in Trigon's words, "in consultation"), is an attempt to prevent the referrals by medical doctors to chiropractors implicit in the new paradigm. It is still one more restraint, arguably the most serious, placed on

chiropractors' equal competitive participation in the market, posing harm to patients and losses to chiropractors, for the gain of medical doctors.

III. ECONOMIC AND HEALTH LOSSES RESULTING FROM THE RESTRAINTS PLACED ON CHIROPRACTORS' ABILITY TO COMPETE EQUALLY IN THE TREATMENT OF BACK PAIN

Chiropractors. The constraints identified and enumerated above impose economic losses, possibly very large, on chiropractors by reducing their incomes from professional practice. The monetary limitations and the reductions in referrals have negative impact on the number of patients, thus substantially reducing chiropractors' incomes from professional practice. Patients may be well aware that chiropractic treatment is less expensive and more efficacious than medical management, hospitalization, or surgery, but recognize that their out-of-pocket costs may be lower if at some point in their treatment, even at the outset, they turn to a different type of provider whose services are more generously covered in their insurance plan. Accordingly, any reductions in the number of patients because of treatment and financial limitations under Trigon insurance coverage necessarily result in economic loss to the excluded provider, in this case chiropractors.

Underpayment for services for insured-covered patients who do pursue treatment by chiropractors further reduces chiropractors' practice incomes below what it would be if insurance reimbursements were fairly and equitably determined by Trigon.

Additionally, it is clear that under the new paradigm, referrals to chiropractors fiom medical doctors would increase, probably substantially: The concerted action of Trigon and the organizations of medical doctors prevents, or at least

seriously limits, such referrals, resulting in further, large economic harm to chiropractors.

Patients and their families are harmed to the extent that an often preferred and proven source of care is made more expensive to them and thus to some degree denied them. Patients either must pay more for chiropractic than they otherwise would if it were insurance-covered, or shift to a lower out-of-pocket-cost provider, risking poorer outcomes. This loss also extends to time lost from work, with the resulting reduced family income. Accordingly, patients incur some or all of the following impacts: higher out-of-pocket costs, treatment by types of providers not their first choice, possibly poorer treatment results, larger income losses from work absence, additional costs on family members for providing care during extended work absences of the primary wage earners, and other impacts, psychological and social.

Further, the use of less effective and more expensive treatments for back pain raises the costs of insurance for everyone, including the families or individuals who purchase their insurance themselves.

Employers are hurt in two ways: First, they represent the largest purchasers of health insurance, and the higher insurance costs resulting from bias in favor of medical, surgical, and hospital care relative to chiropractic care are largely paid for by employers who provide group health insurance plans. Additionally, the proven superior efficacy in terms of functional mobility of chiropractic treatment of back injuries means that workers denied such care will impose on their employers higher Workers Compensation costs and greater productivity losses from work absences. (AHCPR, citing a 1986 study, states: "Moreover, although medical costs are high,

loss of time from work as well as the disability payments for work-related low back problems can together cost up to three times as much as medical treatment.")[12]

Ultimately, society as a whole is the loser in respect to health care costs, personal disability, and productivity losses when all proven treatments are not equally available. Economic and social efficiency – both cost and quality – in the provision of care is sacrificed when the best modality for each patient and procedure is not on the menu of choice. We thus fall short of the essential goal of a free market economy, "value for money."

Accordingly, it is my conclusion that Trigon and the medical doctors of Virginia acting through their various medical organizations, have acted in combination to place restraints on chiropractors' competitive position in providing treatment for back pain and injury, and that immediate removal of these restraints would be in the best interests of patients, the households-businesses, and governments that pay for health insurance, businesses that suffer financial and productivity losses when workers are injured, the chiropractic profession, and thus virtually all of society.

IV. ESTIMATED FINANCIAL DAMAGES TO PLAINTIFF CHIROPRACTORS FROM RESTRAINTS ON COMPETITION BY TRIGON AND VIRGINIA MEDICAL PHYSICIANS

The calculable damages to chiropractors in Virginia, including the plaintiffs in this case, result from Trigon's actions to (A) employ discounting and leveling to reduce payments to chiropractors below levels paid to medical doctors for the same services and (B) reduce the demand for chiropractic services below what this demand would be if the "new

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[12] Stembach, RA. Survey of pain in the United States: The Nuprin pain report. Clin J Pain 1986;2(l):49-53, cf. AHCPR, op. cit, p. 3.

paradigm" implied in the AHCPR Guidelines[13] were followed by medical doctors.

To arrive at a dollar measure of the harmful impact of Trigon's actions on the chiropractors who are the plaintiffs in this case, Trigon's impact on all Virginia chiropractors first is shown, and the plaintiffs share of this adverse effect is derived.

Trigon Has Reduced Its Payments To Chiropractors In Three Ways.

< Trigon has imposed unreasonably low limitations or "caps" on insured persons for chiropractic services.

< Trigon has reduced payments to chiropractors for the same services performed by medical doctors by compensating chiropractors first at 70% and subsequently only 60% of the reimbursement rates to medical doctors.

< Trigon has used leveling to further reduce payments for certain types of procedures performed by chiropractors.

The effects of each such tactic will be evaluated, and then this analysis will turn to evaluating the effects on chiropractors of Trigon's policy of restraining the demand for chiropractic services by deterring patient referrals by medical doctors to chiropractors.

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13 Previously cited.

A. Trigon's Reduced Payments to Chiropractors

1. Caps.

The annual ceiling or cap on chiropractic benefits for Trigon insured patients, which limits to $500 the amount Trigon will pay for any patient's chiropractic treatments within a year, causes patients to either stop their chiropractic treatment when the cap is approached or forego chiropractic treatment entirely. While the extent to which caps reduce patients' patronage of chiropractic is not known, Trigon puts the number of insured who exceed the chiropractic cap at 21,192 for 1996-2001. If only some of these Trigon insured patients stopped their chiropractic treatment because the insurance ceiling had been reached, the financial loss to Virginia chiropractors would be significant. The high incidence of back injuries among the total population suggests that any factor limiting treatment may affect a large number of potential chiropractic patients, if not a high percentage of the population.

2. Reducing payments to chiropractors for services identical to those of medical doctors.

Of all payments to Virginia chiropractors, about 35% are for non-CMT code procedures and 65% are for CMT code procedures.[14] As noted, for these non-CMT code procedures, payments to chiropractors were discounted by 30% up to November, 1996, and by 40% after then. In other words, chiropractors, for the same services as also performed by medical doctors, were paid at 70% of the medical doctors' rate until November 1996 and at 60% of the medical doctors' rate since then.

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14 ACA financial analysis of money lost by chiropractors.

If this arbitrary and discriminatory 30-40% reduction in payments to chiropractors were not in place and Trigon had compensated Virginia chiropractors at the same rates as medical doctors, for the years 1996-2001 Trigon payments would have been $20,051,732 greater than they actually were, as shown in Table 1. The Actual Payments listed in the second column of Table 1 were taken from the "ACA financial analysis of money lost by chiropractors," which relied on the data in Trigon Document TR20020001.

Table 1
Trigon-Imposed Underpayment for
Non-CMT Code Services to All Virginia Chiropractors
1996-2001

Year	Actual Payments to Virginia Chiropractors for Non-CMT Code Services	Adjustment Factor	Payments But For Trigon-Imposed Reduction
2001	57,528,676	(x 1.66)	$12,497,602
2000	6,148,179	»	10,205,997
1999	4,915,779		8,160,193
1998	4,601,106		7,637,836
1997	4,364,450	"	7,244,987
1996	4,333,272	(x 1.43)	6,196,579
TOTAL	$31,891,462		$51,943,194

TRIGON-IMPOSED UNDERPAYMENT FOR NON-CMT CODE SERVICES TO ALL VIRGINIA CHIROPRACTORS, 1996-2001: $51,943,194 - $31,891.462 = $20,051.732.

For CMT code procedures, which represent the other two-thirds of Trigon payments to chiropractors, Trigon has reduced payments by leveling reimbursements for code levels 98940, 98941, and 98942. This has been done, as noted, by using

the lowest Relative Value number, that for code 98940, to calculate the reimbursement rates for all three codes. In this manner, Trigon underpays for all CMT procedures except the lowest-reimbursement procedure. This underpayment per code procedure is shown in Table 2.

Table 2
Trigon Underpayment per Procedure Resulting from Leveling

CMT CODE	Appropriate Reimbursement Rate*	Trigon Leveled Reimbursement Rate[15]	Trigon Under-payment per Procedure
98940	$31.25	$31.25	$0
98941	43.13	31.25	11.88
98942	55.90	31.25	24.65

*Calculated by multiplying RBRVS RVU by the prevailing dollar conversion factor.

These Trigon underpayments per procedure, multiplied by the number of procedures in each code compensated by Trigon in the years 1996-2001, establish the amount by which chiropractors were undercompensated due to leveling. This calculation occurs in Table 3, which shows the underpayment to amount to $15,398,843.

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15 PPO reimbursement rate July 1998 and later. Trigon's PAR (17% of Trigon members) rate is higher and the HMO rate (19% of Trigon members) is, to the extent known from plaintiffs' records, lower.

Table 3
Total Number of CMT Code Procedures Performed By Virginia Chiropractors Paid By Trigon, 1996-2001

Code	Number of procedures	Trigon underpayment factor	Amount underpaid
98940	1,088,614[16]	SO	$0
98941	1,032,888[17]	11.88	12,270,709
98942	126,902[18]	24.65	3,128,134

TOTAL UNDERPAYMENT FOR ALL CMT CODES: 1996-2001
$15,398,843

Accordingly, thus far in the damages analysis, the cumulative monetary impacts of Trigon's large percentage reductions to chiropractors for non-CMT code treatments and the leveling of CMT code treatments for 1996-2001 amount to ($20,051,732 plus $15,398,843), $35,450,575.

B. Trigon's Re-Writing of AHCPR Clinical Practice Guidelines for Low Back Pain: Deterring the Demand for Chiropractic by Failure to Encourage Referrals by Doctors of Medicine to Doctors of Chiropractic.

The loss in income for chiropractors because Trigon reformulated the AHCPR guidelines to minimize referrals from MDs to DCs that would have occurred under the new

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16 Trigon PAR/PPO Data

17 Trigon PAR/PPO Data

18 Trigon PAR/PPO Data

paradigm of treatment for back pain is not precisely calculable, but an educated estimate using the best available data can be made.

The following data provide the background for rendering these educated estimates:

US and Virginia Population Data:[19]

2002 US population: 281.4 million.

2002 Virginia population: 7.1 million.

Current Virginia population 18 years and over: 5,340,253.

Trigon Coverage in Virginia

34% of Virginia population, about 2,414,000 persons, are covered by Trigon health insurance.

Therefore, it is estimated that 34% of the Virginia population, 1,815,686 persons, in the 18 and over age group are covered by Trigon.

The Incidence of Back Pain and its Treatment

In recent years, on average, 9.4% of the national population sought treatment from chiropractors[20]

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19 Bureau of the Census, U.S. Department of Commerce.

20 This percentage is the arithmetic average of the percent of the population seeking chiropractic care in 1990, 1993, and 1997. See Eisenberg, JAMA (1998, Vol.280, pp.1569-75) and Eisenberg, NEJM (1993; 328(4): 246-52.

Of those seeking chiropractic treatment, 45% do so for back pain.[21]

Therefore, on average, at least 4.23% (45% of 9.4%) of the Virginia population 18 years and older can be assumed to comprise the potential demand for chiropractic treatment of back pain each year.

1. The Potential and Actual Usage of Chiropractic for Back Pain Among Trigon Insured

This average rate of use of chiropractic in treating back pain, 4.23%, and the size of the subgroup (the 18 and older Trigon-insured) together tell us the potential annual demand for chiropractic treatment of back pain in Virginia. That demand is calculated as ranging from 72,543 in 1996 to an estimated 78,242 in 2001. In the same time frame, the actual number of Trigon insured in this age category who actually sought such treatment ranged from 26,275 in 1996 to 74,477 in 2001, far fewer each year than the corresponding potential demands. These calculations and comparisons appear in Table 4.

Table 4 Potential Demand and Actual Demand for Chiropractic Treatment of Back Pain by Trigon Insured Virginia Population 18 Years of Age and Older, 1996-2001

Year	Population 18 and Over •	Potential Demand (4.23% of Population)	Actual Demand (TRIGON Insured Treated)
2001	1,849,686*	78,242	74,477

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21 Shekelle, P.G., Adams, A.H., Chassin, M.R., Hurwitz, E.L. Park, R.E., Phillips, R.B., and Brook, R.H. The Appropriateness of Spinal Manipulation of Low Back Pain: Indications and Ratings by a Multidisciplinary Expert Panel, Santa Monica, Calif.: RAND, R-4025/2-CCR/FCER, 1991.

2000	1,815,686**	76,804	63,385
1999	1,770,755***	74,903	50,735
1998	1,747,229	73,908	42,414
1997	1,733,412	73,323	34,814
1996	1,714,965	72,543	26,275

*Estimated
**Calculation
***Census

The deterred demand, the shortfall in chiropractic patients due to Trigon's and its medical physician panel's largely successful efforts to block referrals from medical doctors to chiropractors, is highlighted in Table 5, which shows these annual differences between potential and actual patients enumerated in Table 4.

Table 5 Deterred Demand for Chiropractic Treatment of Back Pain by Trigon Insured 18 Years and Older 1996-2000

Year	Deterred Demand (Potential less Actual)
2001	3,765
2000	13,419
1999	24,168
1998	31,494
1997	38,509
1996	46,268

To establish the lost income to Virginia chiropractors from Trigon's and its medical physician panel's non-referral strategy, the number of deterred cases each year is

multiplied by the average Trigon cost per case, with adjustments made for the percentage reduction of 40% for non-CMT code treatments and the leveling of payments for CMT code treatments.

Previous calculations show Trigon underpayments to chiropractors in the period 1996-2001 for both non-CMT and CMT code treatments to have totaled 535,450,575. In this same period Trigon paid chiropractic claims on behalf of 292,102 claimants. Accordingly, the average underpayment per chiropractic claimant per year is $121.36. Adding this to the average actually paid by Trigon per claimant of $294.14[22], we arrive at $415.50 as the per patient income per year that chiropractors would have received if the percentage reductions for non CMT services and-the leveling of CMT services had not occurred.

In Table 6 chiropractors' total lost income is determined by multiplying for each year the deterred demand and-the undiminished average annual per patient chiropractic expenditure of $415.50. The total lost income from this deterred demand for the period comes to $65,492,356.

Table 6 Virginia Chiropractors' Lost Income From Trigon Induced Deterred Demand, 1996-2001 (Deterred Demand x $415.50)

	Deterred Demand (Patients)	Lost Income
2001	3,765	1,564,357
2000	13,419	5,575,594
1999	24,168	10,041,804
1998	31,494	13,085,757
1997	38,509	16,000,490

22 1997-2001 average.

1996	46,268	19,224,354
TOTAL	157,623	65,492,356

To this point three losses of income to chiropractors have been identified. These losses, and the measured magnitude of each, are:

Losses from annual caps on patient chiropractic benefits: unspecified but possibly large.

Losses from underpayments caused by discounting non-CMT code treatments and leveling CMT code treatments: $35,450,575.

Losses from deterred demand: $65,492,356.

Total calculable losses to Virginia chiropractors, 1996-2001: $100,942,931.

The next task is to determine the share of the plaintiffs in this action of these total losses to all Virginia chiropractors. This is accomplished by calculating plaintiffs' share of all chiropractor payments made by Trigon, and using this ratio to determine their share of Trigon-caused total lost chiropractor income.

Between 1997 and 2001[23], plaintiffs received a grand total of $1,814,593 in Trigon payments for chiropractic services. In the same period, Trigon paid out $576,251,581 to all Virginia chiropractors. Hence, plaintiff chiropractors received 2.38% of total Trigon payments, and can be assumed to have suffered a

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[23] Data showing Trigon payments to these providers for 1996 were not available.

comparable percentage loss in the total Virginia picture. Using the 2.38% figure, the plaintiffs' combined share of that total loss is $2,402,442.[24]

The last step in this analysis is to apportion this lost income among the individual plaintiffs. This is accomplished in Table 7, where each plaintiffs respective dollar loss is calculated; These losses are seen to range from a low of $7,448 to a high of $540,429.

Table 7 Plaintiff Chiropractors' Share of Calculable Monetary Damages Caused by Trigon 1996-2001		
Chiropractor	Share of Plaintiffs' Total Damages (Percent)	Share of Plaintiffs' Total Damages (Dollars)
Douglas F. Ambrose	1,235	29,670
George W. Chirkinian	6,908	165,961
Douglas M. Cox	18,231	437,989
George B. McClelland	6,097	146,477
James M. Porter	1,.310	7,448
Larry L. Stine	22,495	540,429
William R. Thesier	14,651	351,982
John.C. Willis	11,922	286,419
Jerry R. Willis	13,247	318,251
Wendy Holden Willis	2,020	48,529
Steven W. Yates	2,885	69,310

[24] This figure differs slightly from the total in Table 7 due to rounding.

TOTAL	100.000%	2,402,465

Conclusion Regarding Damages to Individual Plaintiffs

The above data strongly support the view that damages to individual plaintiff chiropractors from Trigon's exclusionary actions in the period 1996-2001 were substantial, and would not have been incurred except for the strategies employed by Trigon in agreement with the medical doctors of Virginia acting through representatives of the medical organizations to which they belong.

Dated: March 7,2003

/s/ Leonard G. Schifrin
Leonard G. Schifrin, Ph.D

Appendix A

Publications Sent by Foundation for Chiropractic Education and Research in Response to Request for "Best Studies on Chiropractic Cost and Effectiveness" Published in the 1990s"

1. The State of Chiropractic Research. Meeker, Mootz, and Haldeman. Top Clin Chiropr 2002; 9(1): 1-13

2. Conservative Treatment of Acute and Chronic Nonspecific Low Back Pain. Van Tulder, Koes, and Bouuter. SPINEVolume22, Number 18, pp 2128-2156,1997.

3. Spinal Manipulation vs. Amitriptyline for the Treatment of Chronic Tension-type Headaches: A Randomized Clinical Trial. Boline, Kassak, et al. Journal of Manipulative and Physiological Therapeutics, Volume 18 Number 3 March/April 1995.

4. The Effect of Spinal Manipulation in the Treatment of Cervicogenic Headache. Nilsson, Christrensen, and Harrington. Journal of Manipulative and Physiological Therapeutics, Volume 20 Number 5, June 1997.

5. A Critical Analysis of Randomised Clinical Trials on Neck Pain and Treatment Efficacy.A Review of the Literature. Kjellman, Skargen, and Oberg. Scand J Rehab Med 31; 139-152,1999.

6. Manipulation and Mobilization of the Cervical Spine. A Systematic review of the Literature. Hurwitz, Aker, et al. SPINE Volume 21, Number 15, ppl746-17.60, 1996.

7. Comparative Efficacy of Conservative Medical and Chiropractic Treatments for Carpal Tunnel Syndrome: A Randomized Clinical Trial. Davis, Hulbert, et al. Journal of Manipulative and Phyiological Therapeutics, Volume 21 Number 5, June 1998.

8. Single-blind randomised controlled trial of chemonucleolysis and manipulation in the treatment of symptomatic lumbar disc hemiation. Burton, Tillotson, and Cleary. Eur Spine J (2002) 9: 202-207.

9. A Symptomatic Classification of Whiplash Injury and Implications for the Treatment. IChan, Cook, et al. The Journal of Orthopaedic Medicine 21 [1] 1999.

10. Cost Comparison of Chiropractic and Medical Treatment of Common Musculoskektal Disorders: A Review of the Literature after 1980. Branson. Top Clin Chiro 1999; 6(2): 57-68.

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Board of Editors, INDUSTRIAL ORGANIZATION REVIEW .
Advisory Board, ANTITRUST LAW AND ECONOMICS REVIEW
Editorial Board,. JOURNAL OF RESEARCH IN PHARMACEUTICAL ECONOMICS

Secretary/Treasurer, Industrial Organization Society

7. Representative publications in health care economics and policy:

"Teaching Health Economics in Medical School: Experiences and Observations From the U.S.," JOURNAL OF MANAGEMENT IN MEDICINE, Vol. 3,1989-90.

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"Productivity in the Hospital Sector: A Microeconomic Perspective," Riverside Hospital System Management Conference, Walter Reed Memorial Hospital, Gloucester, Va., September 12-13,1979.

"The Market Mechanism and the Provision of Health Care." Dynamics of the Health Care Economy: Workshop for 4th-year Medical Students. Medical College of Virginia, December 12, 1979.

"The Economics of Ethical Drug Development, Marketing and Use," Uniformed Services University of the Health Sciences, (U.S. Department of Defense), 1978,1979.

"Competitive Conditions in the Health Care Market: The Long Term View," Wertheim & Co. Seminar in Health Care, New York, April 27, .1978.

"Economics of Regulation of Prescription Drugs," Seminar on the Economics of the Pharmaceutical Industry, Rutgers University School of Business, October 12-14, 1978.

"Drugs Under Health Care Insurance: Criteria for Pricing," National Conference on Drug Coverage Under National Health Insurance. National Center for Health Services Research, Washington, D.C., 1977.

"Social Justice in the Access to Health Care Delivery," National Council of Churches of Christ Conference on Distributive Justice in Health Care, Charleston, South Carolina, 1977.

"Health Care Delivery and Health Care Financing," Children's Memorial Hospital, Northwestern University, Chicago, Illinois, (Grand Rounds), 1977.

"Financing Health Care," Eastern Virginia School of Medicine, (Medicine and Society Forum), 1977.

"Pricing, Profits and Public Policy in the Drug Industry," Ohio State University School of Pharmacy, (Ohio Pharmaceutical Seminar), 1977.

"Economic Issues in Health Care," University of Michigan, (Department of Economics), 1977.

"The Drug Industry: An Economic Perspective," Stanford University Department of Economics, (Course: Economics of Health Care), 1976. ' "The Development, Manufacture, and Promotion of Ethical Drugs," Stanford University School of Medicine, (Course: Pharmacology IT), 1976.

"The FDA, Drug Regulation and the Drug Lag Issue," Stanford University School of Medicine, (Pharmacology Department Seminar), 1976.

"Cost Benefit Analysis in Health Care," Stanford University School of Medicine, (Clinical Scholars Seminar), 1976.

"The Economics of Health Care," Eastern Virginia Medical School, (Behavioral Sciences Section), 1976. "Poverty and Health' Care," Eastern Virginia Medical School, (Behavioral Sciences Section), 1976.

"Economic Policy Toward the Ethical Drug Industry," Ohio State University School of Pharmacy, (Graduate Seminar in Pharmacy Administration), 1976.

"The Economics of Prescription Drugs," Stanford University, School of Medicine, (Course: Medicine and Society), 1975.

Discussant, "True Rates of Return on Pharmaceutical Investment," American University, Second Conference on Innovation in the Pharmaceutical Industry, 1974.

"Compulsory Licensing of Ethical Drug Product Patents," American UniversitySeminar on the Economics of Innovation in the Pharmaceutical Industry, 1969.

"Pharmaceutical Research and Economic Implications," City University of New York, (Seminar in Health Economics), 1969.

CONGRESSIONAL TESTIMONY.

Subcommittee on Courts, Senate Committee on the Judiciary, "Oversight into the Administration of State and local Adjudication of Driving While Intoxicated." Nov. 6, 1981

House Subcommittee on Health (Energy and Commerce) Hearings on "Patent Term Restoration Act of 1981." March 30, 1981

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Subcommittee on Monopoly, Senate Select Committee on Small Business, Hearings on Competitive Problems in the Drag Industry, March 14, 1973. Subcommittee on Monopoly, Senate Select Committee on Small Business, Hearings on Competitive Problems in the Drug Industry, Jan. 19, 1968

LITIGATION CONSULTATION AND TESTIMONY:

FTC v. Warner-Lambert Corp. Sec. 7 Clayton Act action against acquisition of Parke, Davis Corp. by Warner-Lambert. Expert witness for FTC.

U.S. Dept. of Justice v. Pfizer Corp. et. al. Sec. 1 and 2 Sherman Act case against tetracycline manufacturers.

Expert witness for U.S. Department of Justice, Antitrust Division. U.S. Dept. of Justice v. Ciba-Geigy Corp. Sec. 2 Sherman Act case regarding licensing of hydrochlorothiazide.

Expert witness for U.S.Department of Justice, Patent Division. Ampicillin Antitrust Litigation D.D.C. Misc. 45-70 Sec. 2 Sherman Act case regarding restrictive licensing of ampicillin by Bristol-Myers Corp. Expert witness for plaintiff states, cities, et. al. in class action.

Pfizer Corp. v. International Rectifier Corp. Doxycycline patent infringement damages case. Expert witness for defendant.

Johnson v. HEW Suit under Freedom of Information Act for availability of evidence on adverse drug reactions during testing. Expert witness for plaintiff.

Personal injury cases related to drug Oraflex (Lilly brand of benoxaprofen).Expert witness for plaintiffs.

Jack Eckerd Corporation v. Merck & Co. Sec. 2 Sherman Act case relating to vertical distribution of Merck drug products. Expert witness for plaintiff.

Hybritech, Inc. v. Abbott Laboratories Sherman Act case regarding monopolization in biotechnology industry, immunodiagnostics markets. Expert witness for plaintiffs.

Personal Injury cases related to drug Feldene (Pfizer brand of piroxicam). Expert witness for plaintiffs.

Ballard Medical Products v. Smiths Industries Medical Systems. Patent infringement and monopolization case relating to closed-system respiratory suction catheters. Expert witness for Ballard Medical Products.

Current: Litigation regarding Virginia MEDICAID' reimbursement payments to HCMF Corporation of Virginia Expert witness for plaintiffs HCMF

Numerous pharmaceutical product liability cases regarding use of "phen-fen" drug combination. Expert witness for plaintiffs

GOVERNMENT:

Consultant, Senate Labor and Human Resources Committee, 1990. Consultant, Senate Special Committee on Aging, 1990

Consultant, Antitrust Division, Department of Justice, 1973-1979.

Member, Pharmaceutical Review Advisory Committee, Department of Health, Education and Welfare, 1977-1978.

Consultant, Patent Division, Department of Justice, 1975.

Consultant, Bureau of Competition, U.S. Federal Trade Commission, 1973-1974
Consultant, Office of Research and Statistics, Social Security Administration, 1968-1973. Consultant, Tax Division, Department of Justice, 1968-1969.

Consultant, Subcommittee on Monopoly (Nelson Committee), Senate Select Committee on Small Business, 1966-1968.

Consultant, Task Force on Prescription Drugs, Office of the Secretary of Health, Education and Welfare, 1967-1968.